

## WHAT IS CLAIMED IS:

*A Substrate*

1. ~~Substrate~~<sub>1</sub> which is made from paper and is provided with at least one integrated circuit, wherein the integrated circuit is flexible and comprises a semiconductive organic polymer.

*The substrate*

2. ~~Substrate~~<sub>1</sub> according to claim 1, wherein the organic polymer is selected from conjugated polymers.

*The substrate*

3. ~~Substrate~~<sub>1</sub> according to claim 1, wherein the organic polymer is selected from oligomeric pentacene, poly(thienylene vinylene) or poly-3 alkylthiophene.

*The substrate*

4. ~~Substrate~~<sub>1</sub> according to claim 1, wherein the integrated circuit is a contactlessly readable IC which can be read in an inductive or capacitive manner.

*The substrate*

5. ~~Substrate~~<sub>1</sub> according to claim 1, wherein the substrate comprises a conductive security thread which is connected to the integrated circuit or circuits, which security thread serves as a contact for readout operations and for current supply.

*The substrate*

6. ~~Substrate~~<sub>1</sub> according to claim 5, wherein the integrated circuit forms part of the security thread.

*The substrate*

7. ~~Substrate~~<sub>1</sub> according to claim 5, wherein the security thread has a thickness which lies in the range of from 5-60% of the thickness of the substrate.

*The substrate*

8. ~~Substrate~~<sub>1</sub> according to claim 1, wherein the integrated circuit forms part of an optical active element, such as a foil, hologram or kinegram.

*The substrate*

9. ~~Substrate~~<sub>1</sub> according to claim 1, wherein the integrated circuit comprises a preprogrammed code which is applied before incorporating the circuit in the substrate.

*The substrate*

10. ~~Substrate~~<sub>1</sub> according to claim 1, wherein the

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integrated circuit comprises a code of an intrinsic property of the substrate, which code, after the substrate has been produced, is arranged in the integrated circuit.

*The Substrate*

- 5 11. ~~Substrate~~ according to claim 9, wherein the code is an encrypted code.

*The Substrate*

12. ~~Substrate~~ according to claim 1, wherein the substrate comprises additional security features.

*The substrate*

- 10 13. ~~Substrate~~ according to claim 12, wherein an additional security feature is selected from a dye, fluorescent material, luminescent material or phosphorescent material.

*A security*

- 15 14. ~~Security~~ paper comprising a substrate according to claim 1.

*A security*

15. ~~Security~~ document comprising a substrate according to claim 1.

*A security*

- 20 16. ~~Security~~ thread comprising an insulating support bearing a flexible integrated circuit comprising a semiconductive organic polymer, provided with electrical contacts for the integrated circuit.

*An optically*

- 25 17. ~~Optically~~ active element comprising a flexible integrated circuit comprising a semiconductive organic polymer, provided with electrical contacts for the integrated circuit.

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B3 >*

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